EPA Works # 68-03-3482

Project # 3347-II-01-3482

Millington Asbestos Dump Site
Millington, MJ

Millington, M

#### ANALYTICAL REPORT

Prepared by Roy F. Weston, Inc.

Millington Asbestos Dump Site Millington, NJ

Sept. 10, 1990

EPA Work Assignment No. 2-426 Project No. 3347-21-01-3426 EPA Contract No. 68-03-3482

> Submitted to S. Burchette **EPA-ERT**

D. deBruijn Task Leader

Analysis by

Scientific Laboratories

Kansal S. & A. Section Chief

(Acting)

W. S. Butterfield

Project Manager

Prepared by: G. Karustis

Reviewed by: Yi-Hua Lin



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

#### REGION II 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278

September 20, 1990

Ms. Jamie Kehoe New Vernon Rd Gillette, NJ 07933

Dear Ms. Kehoe,

On August 24, 1990, the Environmental Response Team (ERT) of the United States Environmental Protection Agency (EPA) collected a dust sample from your house. The sample was analyzed by Scientific Laboratories, INC. for percent asbestos by weight.

The results of the asbestos analysis indicate that the sample contained less than 1% by weight chrysotile asbestos.

These levels are considered at the low end of the risk range. However, the presence of asbestos fibers in your house may represent a potential human health risk and further sampling is necessary to confirm these results. EPA has been and will continue to consult with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding this information. EPA will be contacting you to make arrangements for further sampling.

If you have any questions pertaining to the potential health risks, please contact Arthur Block (ATSDR) at (212) 264-6739. If you have any questions relating to the sampling, please contact me at (212) 264-0970.

Sincerely,

Nickie Di Forte, Chief

Northern New Jersey Site Compliance Section Emergency and Remedial Response Division



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

#### REGION II 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278

September 20, 1990

Mr. A. Schmidt 201 New Vernon Rd Gillette, NJ 07933

Dear Mr. Schmidt,

On August 24, 1990, the Environmental Response Team (ERT) of the United States Environmental Protection Agency (EPA) collected a dust sample from your house. The sample was analyzed by Scientific Laboratories, INC. for percent asbestos by weight.

The results of the asbestos analysis indicate that the sample contained less than 1% by weight chrysotile asbestos.

These levels are considered at the low end of the risk range. However, the presence of asbestos fibers in your house may represent a potential human health risk and further sampling is necessary to confirm these results. EPA has been and will continue to consult with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding this information. EPA will be contacting you to make arrangements for further sampling.

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Sincerely,

Nuhii Is Inte Nickie Di Forte, Chief

Northern New Jersey Site Compliance Section Emergency and Remedial Response Division



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#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

# REGION II 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278

September 20, 1990

Mr & Mrs Driscoll 697 White Bridge Rd Gillette, NJ 07933

Dear Mr. & Mrs. Driscoll,

On August 24, 1990, the Environmental Response Team (ERT) of the United States Environmental Protection Agency (EPA) collected a dust sample from your house. The sample was analyzed by Scientific Laboratories, INC. for percent asbestos by weight.

The results of the asbestos analysis indicate that the sample contained less than 1% by weight chrysotile asbestos.

These levels are considered at the low end of the risk range. However, the presence of asbestos fibers in your house may represent a potential human health risk and further sampling is necessary to confirm these results. EPA has been and will continue to consult with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding this information. EPA will be contacting you to make arrangements for further sampling.

If you have any questions pertaining to the potential health risks, please contact Arthur Block (ATSDR) at (212) 264-6739. If you have any questions relating to the sampling, please contact me at (212) 264-0970.

Sincerely,

Numi Dota Nickie Di Forte, Chief

Northern New Jersey Site Compliance Section Emergency and Remedial Response Division

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# REGION II REMOVAL ACTION BRANCH Edison, NJ

# FACSIMILE COVER SHEET

To: Ray Basso
Phone:
=Fax No: 264-6192
VSubject:
Phone:  Nuclaie  Phone:  Number of pages to follow:  **Date sent:  Time:

For confirmation, call (201) 321-6657



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## REGION II 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278

September 20, 1990

Larson 65 New Vernon Rd Gillette, NJ 07933

Dear Resident,

On August 24, 1990, the Environmental Response Team (ERT) of the United States Environmental Protection Agency (EPA) collected a dust sample from your house. The sample was analyzed by Scientific Laboratories, INC. for percent asbestos by weight.

The results of the asbestos analysis indicate that the sample contained less than 1% by weight chrysotile asbestos.

These levels are considered at the low end of the risk range. However, the presence of asbestos fibers in your house may represent a potential human health risk and further sampling is necessary to confirm these results. EPA has been and will continue to consult with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding this information. EPA will be contacting you to make arrangements for further sampling.

If you have any questions pertaining to the potential health risks, please contact Arthur Block (ATSDR) at (212) 264-6739. If you have any questions relating to the sampling, please contact me at (212) 264-0970.

Sincerely,

Nickie Di Forte, Chief

Northern New Jersey Site Compliance Section Emergency and Remedial Response Division



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

#### REGION II 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278

September 20, 1990

Mr & Mrs Hamilton 684 White Bridge Rd Gillette, NJ 07933

Dear Mr. & Mrs. Hamilton,

On August 24, 1990, the Environmental Response Team (ERT) of the United States Environmental Protection Agency (EPA) collected a dust sample from your house. The sample was analyzed by Scientific Laboratories, INC. for percent asbestos by weight.

The results of the asbestos analysis indicate that the sample contained less than 1% by weight chrysotile asbestos.

These levels are considered at the low end of the risk range. However, the presence of asbestos fibers in your house may represent a potential human health risk and further sampling is necessary to confirm these results. EPA has been and will continue to consult with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding this information. EPA will be contacting you to make arrangements for further sampling.

If you have any questions pertaining to the potential health risks, please contact Arthur Block (ATSDR) at (212) 264-6739. If you have any questions relating to the sampling, please contact me at (212) 264-0970.

Sincerely,

Nickie Di Forte, Chief

Northern New Jersey Site Compliance Section Emergency and Remedial Response Division



Roy F. Weston, Inc./MFD
1090 King Georges Post Road
Suite 201
Edison

Client

Edison, NJ 08837

Sampling Date:

Facility:

Collected By

#### **BULK SAMPLE ANALYSIS SUMMARY**

Sample No.	Lab No.	Location	Sample Composition		
BL001	107559	1 X 8 Oz. Dust Sample	Asbestos.	2% Chrysotile	
			Fibrous Materia!	5% Magnesium, Silicon, & Iron	
			Non-Fibrous Material:	93%	
BL002	107560	1 X 8 Oz. Soil Sample	Asbestos	5% Chrysotile	
			Fibrous Material	None Detected	
			Non-Fibrous Material:	95%	
BL003	107561	1 X 8 Oz. Soil Sample	Asbestos	5% Chrysotile	
	1		Fibrous Material:	None Detected	
	!		Non-Fibrous Material:	95%	ABD
BL004	107562	1 X 8 Soil Sample	Asbestos	5% Chrsyotile	001
			Fibrous Material:	None Detected	1977
			Non-Fibrous Material:	95%	
This confident	ial report relates of	NIST-NVLAP Active to those item(s) tested and does not r	ccreditation No. 1165 epresent an endorsement by N	IST-NVLAP or any agency of the U.S. gov	emment.
Polanzed Lig EPA 600 M+	tht Microscopy Dis -82-020-20, Dec. 19		Scanning Electron Microscopy Transmission Electron Microsco	Energy Dispersive X-ray Microanalysis (Stopy (TEM EDX)	EM EDX)
Comments:		-			
					<del></del>
Analysis Perfor		H. Newton Date:	8/6/90 Approved By:	· de Cirled	-

**ICATE OF A** 

Client

Roy F. Weston, Inc./MFD 1090 King Georges Post Road Suite 201

Edison, NJ 08837 Report Date:

Project No.:

Samping Date.

Facility

Collected By:

#### **BULK SAMPLE ANALYSIS SUMMARY**

Sample No.	Lab No.	Location	Sample Composition		
BL005	107563	1 X 8 Oz. Soil Sample	Asbestos:	5% Chrysotile	
	; ;		Fibrous Matenal:	None Detected	
			Non-Fibrous Material.	95%	
BL006	107564	1 X 8 Oz. Soil Sample	Asbestos	5% Chrysotile	
			Fibrous Material	None Detected	
	: 		Non-Fibrous Material	95%	
BL007	107565	1 X 8 Oz. Soil Sample	Asbestos.	2% Chrysotile	
			Fibrous Matenal:	None Detected	
	:		Non-Fibrous Material:	98%	ABD (
BLOQ8	107566	1 X 8 Soil Sample	Asbestos:	2% Chrsyotile	100
			Fibrous Material:	None Detected	1978
	<u> </u> 		Non-Fibrous Material:	98%	
This confident	relative or	NIST-NVLAP Active to those item(s) tested and does not no	creditation No. 1165	IST-NVI AP or any agency of the I'S or	overnment
<del></del>			****		
	tht Microscopy: Disp =82-020-20, Dec. 190		Scanning Electron Microscopy Transmission Electron Microsco	Energy Dispersive X-ray Microanalysis ( opv (TEM EDX)	SEM EDX)
Comments:					
Analysis Perfo	J・rmed By	H. Newton Date:	8/6/90 Approved by	tankeyel.	ory Directo

### ICATE OF A

Roy F. Weston, Inc./MFD 1090 King Georges Post Road Client

Suite 201 08837 Edison, NJ

Report Date:

Project No.:

Samping Date.

Facility:

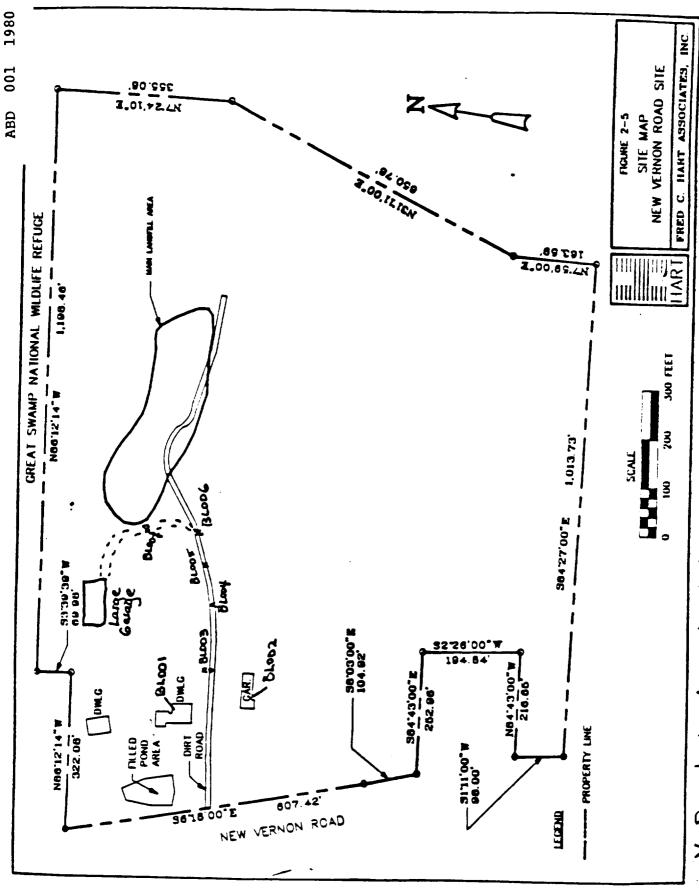
Collected By

#### **BULK SAMPLE ANALYSIS SUMMARY**

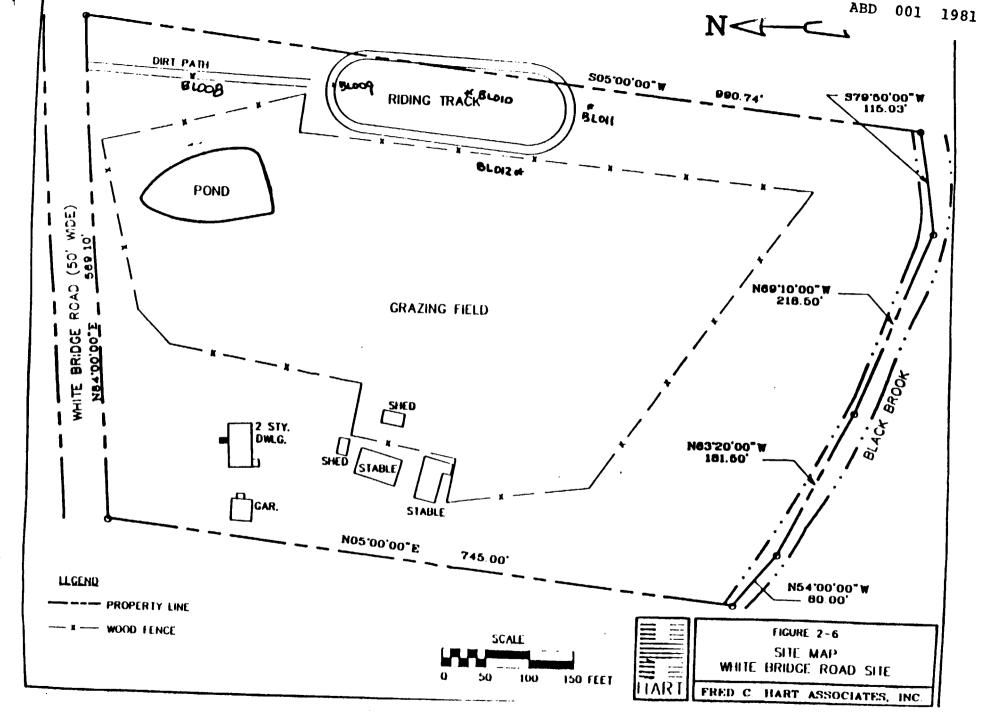
Sample No.	Lab No.	Location	Sample Composition	
BL009	107567	1 X 8 Oz. Soil Sample	Asbestos:	5% Chrysotile
			Fibrous Material:	None Detected
			Non-Fibrous Material:	95%
BL010	107568	1 X 8 Oz. Soil Sample	Asbestos:	5% Chrysotile
			Fibrous Matenal.	None Detected
			Non-Fibrous Material:	95%
BL011	107569	1 X 8 Oz. Soil Sample	Ashestos.	5% Chrysotile
			Fibrous Material:	None Detected
			Non-Fibrous Material:	95%
BLO¥2	107570	1 X 8 Soil Sample	Asbestos.	5% Chrsyotile
	 		Fibrous Material:	None Detected
			Non-Fibrous Material:	95%

Polarized Light Microscopy: Dispersion Staining (PLM) EPA 600 M+82-020-20. Dec. 1982	Scanning Electron Microscopy: Energy Dispersive X-ray Microanalysis (SEM EDX)  Transmission Electron Microscopy (TEM EDX)
Comments:	
J. H. Newton Analysis Performed By:	Date: Approved by Laboratory Director

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#### CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY - REGION II ENVIRONMENTAL SERVICES DIVISION EDISON, NEW JERSEY 08817

**T2** 59

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#### BULK SAMPLE - CERTIFICATE OF ANALYSIS

DATE:

August 13, 1990

SAMPLE#: BL001

IATL#:

90-107559

CLIENT:

Roy F. Weston, Inc./MFD 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

#### ANALYSIS SUMMARY

ASBESTOS PRESENT:

Yes

PERCENTAGE OF BULK MATERIAL DETERMINED TO BE ASBESTOS:

> PERCENT: 2 ₺

Chrysotile PRIMARY ASBESTOS TYPE: SECONDARY ASBESTOS TYPE: None Detected

PERCENT:

5% Fibers Containing Magnesium, Silicon, OTHER FIBROUS MATERIAL:

28

and Iron

OTHER MATERIALS PRESENT:

93% Non-fibrous particulate containing

Silicon, Aluminium, Iron, Calcium,

and Potassium

ANALYSIS METHOD:

Transmission Electron Microscopy

Each sample is examined at magnifications

ranging from 1,000 to 20,000 X. All fiber types are identified by Energy Dispersive X-Ray Microanalysis (EDX) for chemical composition and Selective Area Electron Diffraction (SAED) for

crystal structure.

COMMENTS:

Micrographs and EDX spectra are attached.

ANALYSIS PERFORMED BY: J. H. Newton

APPROVED BY:

Jean Taleb

Laboratory Director

#### BULK - TEM - Count Sheet

Sample #: BLcc  Grid I.D. 112-  Microscope Model: Serial #: X-Ray Analyzer Mode	S2 Hitachi H-60	A I I OAB	Pate: (c-panalyst: c-panalyst:	MCE 962 mm2 0.45 um	0 X
Sample Type: DUST Sample Color: TRW	to Beaud	· F	Iomogeneous:	YES)/ NO	1
TYPE	ELEMENTS	SAED	AVERAGE SIZE	PERCENT PRESENT	
CHEMSORLE	mg, si		1240	2.70	#18
FIREDUS (NON-ASSESSE)	mg, Si, Fer		< 2 m	5 70	
NFP	Si.Al. Co. K		: + mm		
Volume of Sample:	/0 cc 75 ·2	No. Gr Area A	Opening Area: rid Openings: Analyzed: volume Anal	20	_
Total Perce	nt Asbestos:	2	,		
Total Perce	nt Non-Asbestos:	5			
	nt Non-Fibrous P				

Analyzed By: John H. Durlon

BD 001 19

Section I

Introdi	uction		Page	1
Section	ı I			
	Procedure for Asbestos		Page	2
	Results of the Asbestos Analysis for the Bulk Samples	Table 1.1	Page	5
	Results of the Asbestos Analysis for the Water Sample	Table 1.2	Page	
Section	ı II			
	QA/QC for Asbestos		Page	6
	Figure 1		Page	
	Figure 2		Page	
Section	ı III			
	Chain of Custody		Page	9
Append	dix A Data for Asbestos		Page 1	A1
	Appendix will be furnished on request.			

#### INTRODUCTION

REAC Laboratory, in response to ERT work assignment 3347-21-01-3426, provided analytical services for soil and water samples collected from the Millington Asbestos Dump Site, in Millington, NJ on August 24, 1990. These services involved the subcontracted analyses for asbestos and a final report summarizing the analytical results.

Upon receiving the samples in the laboratory the sample custodian followed standard procedures for inspection of the chain-of-custody and record keeping for sample tracking.

#### PROCEDURE FOR ASBESTOS

This method leads to the identification of any asbestos minerals (fibers) present within the sample, as well as giving the bulk percent. The following procedure represents the steps utilized to analyse the bulk samples.

- (1) A homogeneous representation of the samples are shaved/crushed with scalpel and milled in a Retsch Type MM2 mixer mill;
- (2) Approximately 300-350mg of these shavings (total weight) are weighed;
- (3) The sample material is placed into a crucible and heated in a muffle furnace at 450-480°C for 10-12 hours;
- (4) The sample is weighed again, to determine weight loss of plastic (organics);
- (5) The sample is treated with concentrated HCl to dissolve the calcium carbonate present in most floor tiles. Following this reaction, the solution is diluted rapidly, to insure preservation of asbestos fibers.
- (6) The material is filtered onto a pre-weighed, 47mm, 0.4 micron, PC filter, dried and weighed. This weight represents the total weight of asbestos, plus any pigment found in small quantities within the sample, such as titanium oxide and/or iron oxide. A percentage is then calculated from the total weight to give percent asbestos. A semi-quantified estimate of the total is given, following electron microscopy, to determine asbestos -vs- non-asbestos material remaining.
- (7) After weighing, the filteres sample is re-suspended in 50% ethyl alcohol (dispersant for fibrous material) and sonicated for 10 minutes to break up the large aggregated bulk material.
- (8) Approximately 3 microliters of this solution are pipetted onto a preprepared blank carbon coated MCE filter-200 mesh copper grid (procedure described below) and air dried for 15 minutes.

#### **PROCEDURE FOR ASBESTOS**

(9) Store the sample in the appropriate grid box for TEM analysis.

#### PRE-PREPARED BLANK CARBON COATED MCE FILTERS

- (a) Approximately 25% of the 25mm MCE membrane is cut, from the blank filter sample.
- '(b) Each filter section is placed, sample face upward, on top of a glass slide that has 30 microliter aliquots of dilute dimethyl formamide (DMF), (50% water, 35% DMF, 15% glacial acetic acid).
  - (c) The entire slide, with the blank MCE filter, is placed on a thermostatically controlled slide warmer at 65°C for 10 minutes.
  - (d) The "collapsed" filters are etched in our low-temperature BIO-RAD plasma system. (This system has been calibrated for proper power (watts) and oxygen flow).
  - (e) The etched filter is placed into a Hitachi HUS-5GB vacuum evaporator, to deposit a thin film of carbon onto the blank MCE filter.
  - (f) Following the carbon coat, the sample is placed back onto the clean bench and cut into 1 millimeter sections, placed on a 200-mesh copper grid and put into the Jaffe-wash for dissolution (100% DMF) for one hour.
  - (g) The blank filters are then placed into a condenser washer system (with vaporized acetone) for thirty minutes to complete the replica process, dried and stored for use in our final steps of the bulk protocol that were described in steps 1 through 9.

Results of this Analysis are listed in Table 1.1

#### **PROCEDURE FOR ASBESTOS**

NIOSH Procedure 7402 and AHERA Mandatory Method (40 CFR 763) were used to analyse the water sample by Transmission Electron Microscopy as detailed below.

- (1) Approximately 25% of the 25mm membrane is cut, to represent the filtered sample.
- (2) Each sample is placed, sample face upward, on top of a glass slide that has 30 microliter aliquots of dilute dimethyl formamide (DMF), (50% water, 35% DMF, 15% glacial acetic acid).
- (3) The entire slide, with your sample(s) and 1 lab blank, is placed on a thermostatically controlled slide warmer at 70°C for 10 minutes.
- (4) The "cleared" filters are etched in our low-temperature BIO-RAD plasma system to collapse the MCE filter. (This system has been calibrated for proper power (watts) and oxygen flow).
- (5) The etched filter is placed into a Hitachi HU5A vacuum evaporator, to deposit a thin film of carbon onto the sample.
- (6) Following the carbon coat, the sample is placed back onto the clean bench and cut into (3) 1 millimeter sections, placed on a 200-mesh, copper or gold, grid and put into the Jaffe-wash for dissolution (100% DMF).
- (7) The sample is then placed into a condenser washer system (with vaporized acetone) to complete the replica process, dried and stored.

Results of this Analysis are listed in Table 1.2

ABD 001 199

Table 1.1 Results of the Asbestos Analysis for the Millington Asbestos Dump Bulk Samples Project # 3426

Location	Asbestos Type	Fiber Diameter Range (um)	Asbestos Content (Weight %)
Background	Chrysotile	0.02-0.10	<1
Teilman's	Chrysotile	0.02-0.15	<1
Teilman's	Chrysotile	0.02-0.05	<1
Kehoe	Chrysotile	0.02-0.05	<1
Keho <b>e</b>			<1*
Driscoll	~~~		<1*
Driscoll	Chrysotile	0.02-0.20	<1
Schmidt	Chrysotile	0.02-0.05	<1
Major	Chrysotile	0.02-0.05	<1
Larson	Chrysotile	0.02-0.05	<1
Hamilton	Chrysotile	0.02-0.05	<1
	Background Teilman's Teilman's Kehoe Kehoe Driscoll Driscoll Schmidt Major Larson	Background Chrysotile Teilman's Chrysotile Teilman's Chrysotile Kehoe Chrysotile Kehoe Chrysotile Schmidt Chrysotile Major Chrysotile Larson Chrysotile	Type Diameter Range (um)  Background Chrysotile 0.02-0.10 Teilman's Chrysotile 0.02-0.05 Teilman's Chrysotile 0.02-0.05 Kehoe Chrysotile 0.02-0.05 Kehoe Driscoll Chrysotile 0.02-0.20 Schmidt Chrysotile 0.02-0.05 Major Chrysotile 0.02-0.05 Larson Chrysotile 0.02-0.05

<sup>\*</sup> denotes that No Asbestos Structures were Detected

Table 1.2 Results of the Asbestos Analysis for the Millington Asbestos Dump Water Sample Project # 3426

Sample II	) Location	Total (MFL)	>10 um (MFL)	AS (MFL)	ug/l
1165	NA NA	NSD		0.0822	
NA denot	oc Not Avai	labla			

NA denotes Not Available

NSD denotes No Asbestos Structures Detected

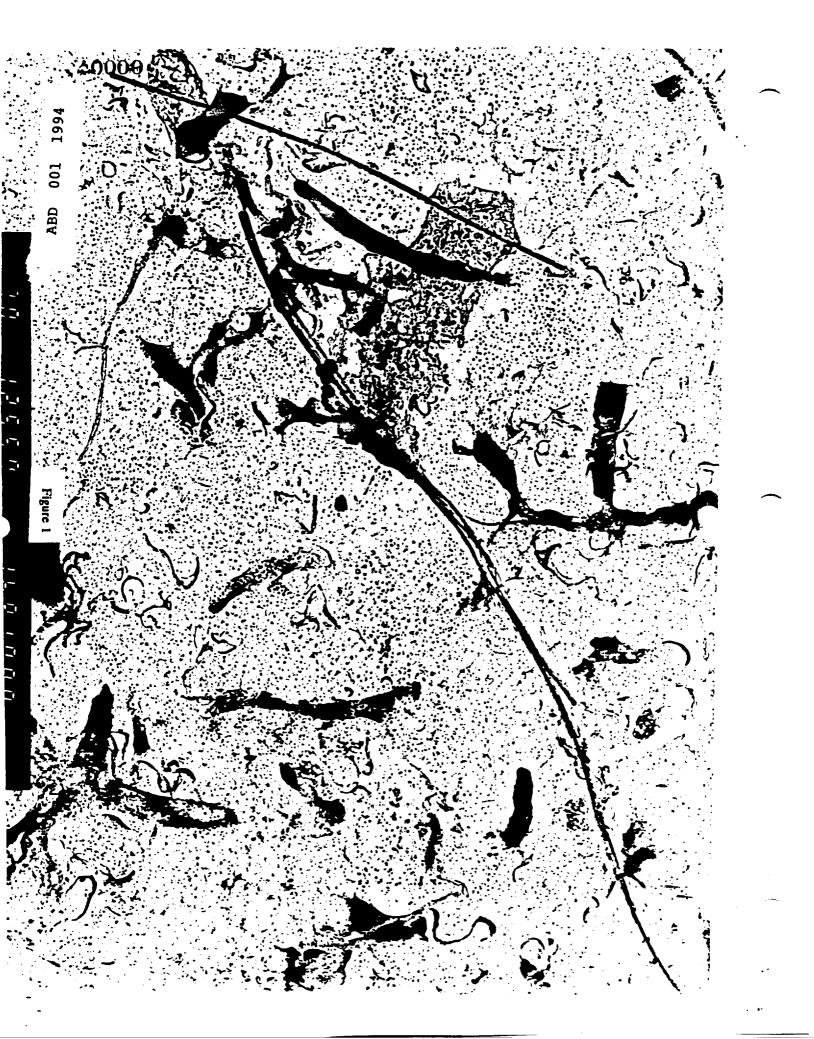
MFL denotes Million Fibers per Liter

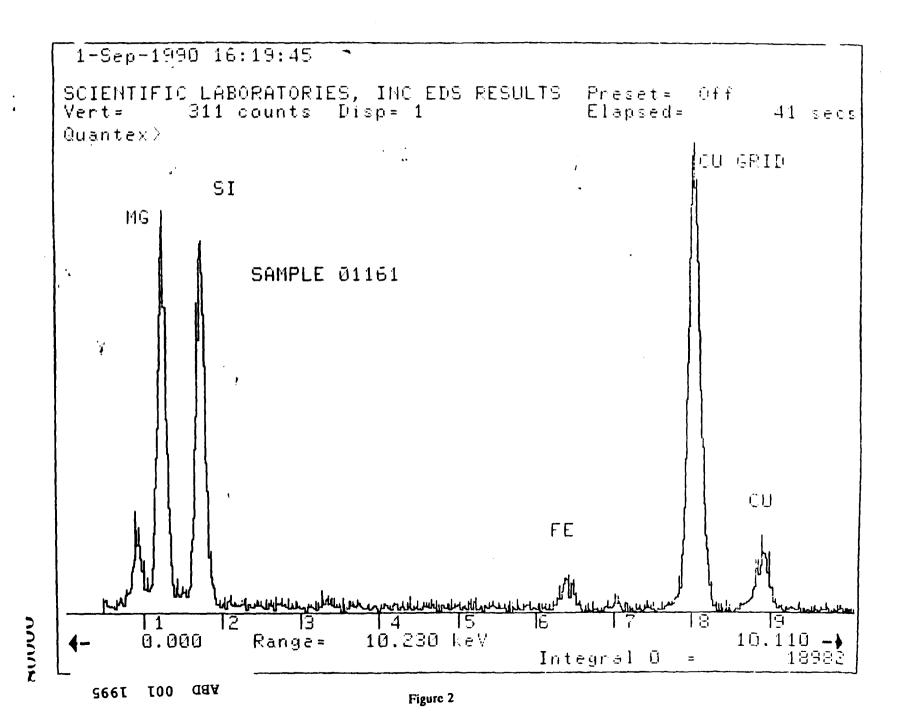
Section I

#### QA/QC FOR ASBESTOS

The subcontrating laboratory supplied a magnification of an asbestos particle, shown here as Figure 1, at 7000 power magnification. The hollow property of the crysotile particle may be clearly seen on the left side of the long fiber. Figure 2 depicts an Electron Dispersive analysis of a fiber detected for sample 1161 (Background). The high magnesium and silicon content of the fiber, characteristic of asbestos may be seen.

BD 001 1993





Section III

A INUC	₹ <b>₽</b>
Roy F.	eston, Inc.
REAC, Ed	lison, N.J.
<b>EPA Cont</b>	ract 68-03-3482

#### CHAIN OF CUSTODY REC AD/LAB WORK REQUEST

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Project Name:
Project Number:

RFW Contact:
Phone:
Due 1

\_\_\_Due Date: \_\_\_\_\_

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ANALYSES REQUESTED
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S- Soil DS- Drum Solids

W- Water DL- Drum Liquids
O- Oil X- Other

Special instructions: An Annual Annua

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